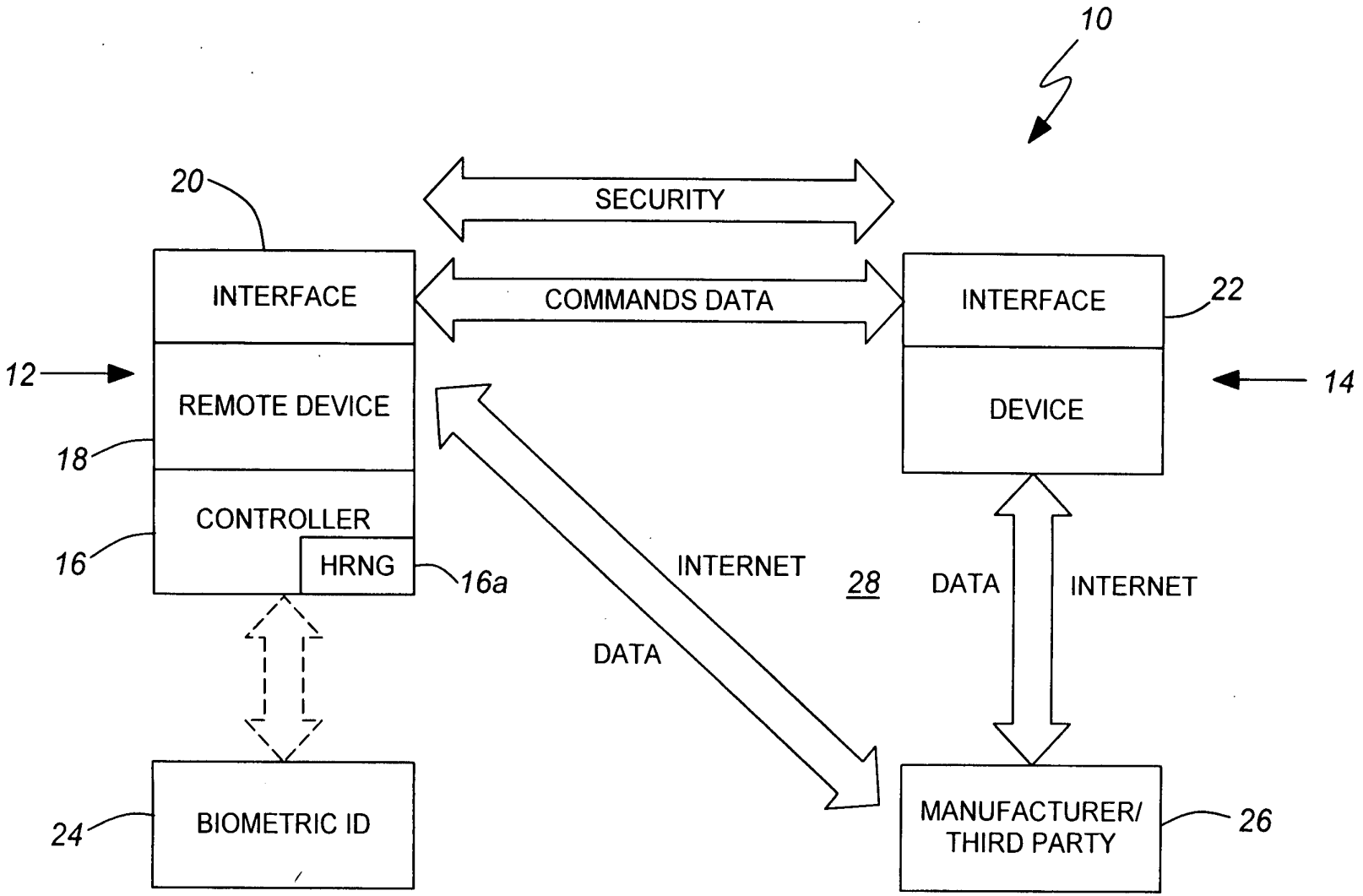

10
20
SECURITY
INTERFACE
COMMANDS DATA
INTERFACE
22
12
REMOTE DEVICE
DEVICE
14
18
CONTROLLER
16
HRNG
16a
INTERNET
28
DATA
INTERNET
DATA
BIOMETRIC ID
24
MANUFACTURER/
THIRD PARTY
26

FIG. 1

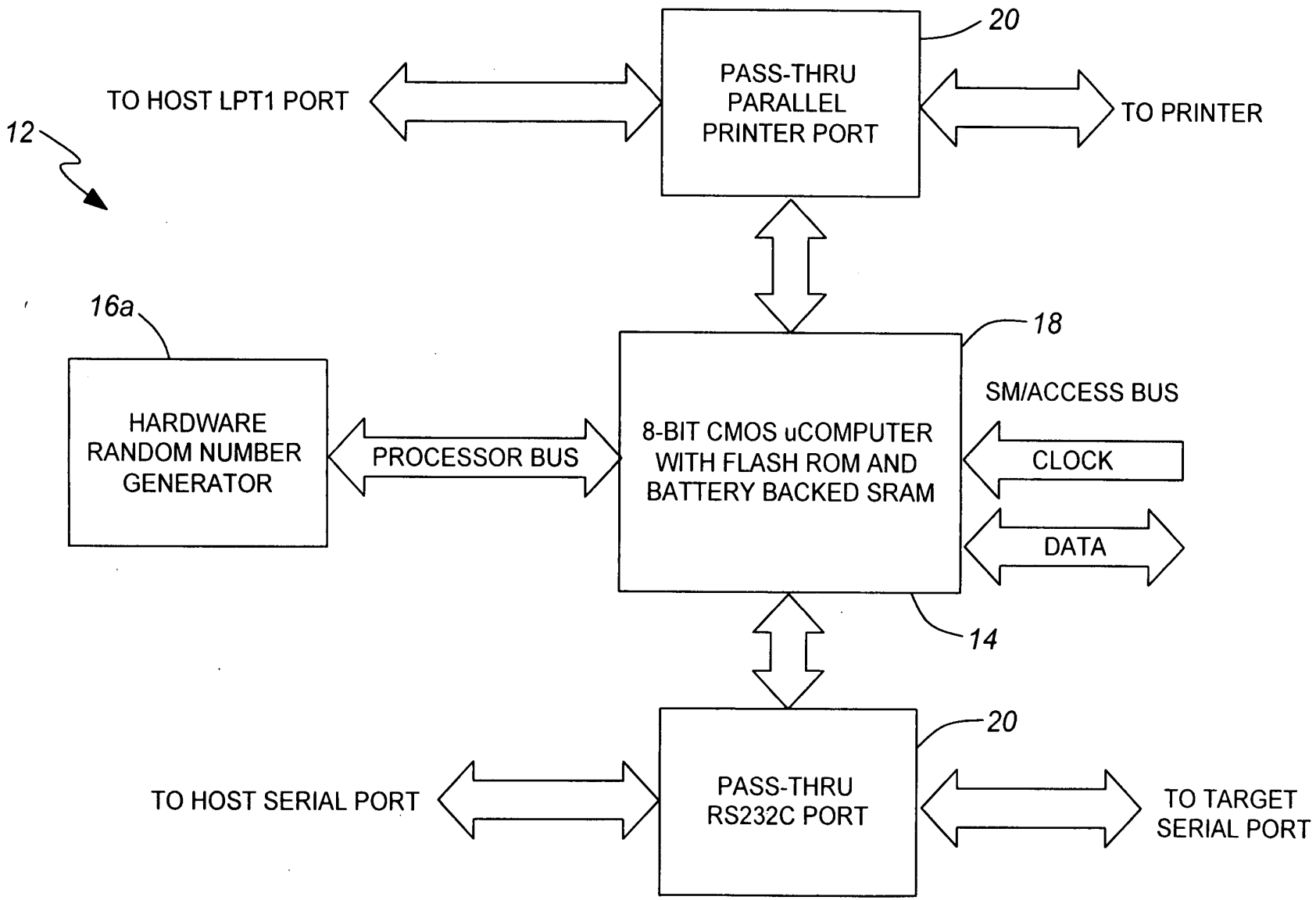

12
TO HOST LPT1 PORT
PASS-THRU
PARALLEL
PRINTER PORT
20
TO PRINTER
16a
HARDWARE
RANDOM NUMBER
GENERATOR
PROCESSOR BUS
8-BIT CMOS uCOMPUTER
WITH FLASH ROM AND
BATTERY BACKED SRAM
18
SM/ACCESS BUS
CLOCK
DATA
14
TO HOST SERIAL PORT
PASS-THRU
RS232C PORT
20
TO TARGET
SERIAL PORT

FIG. 2

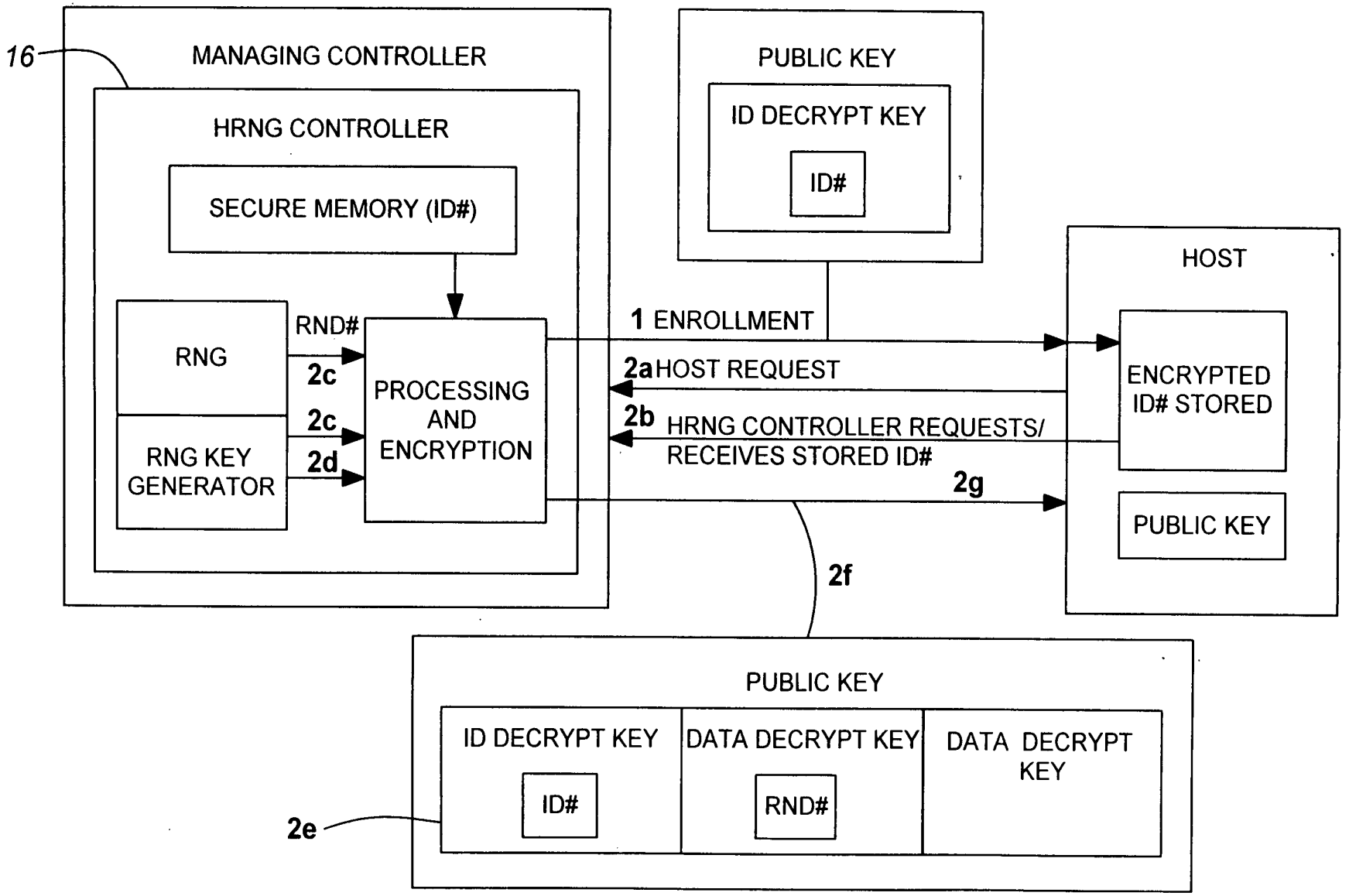
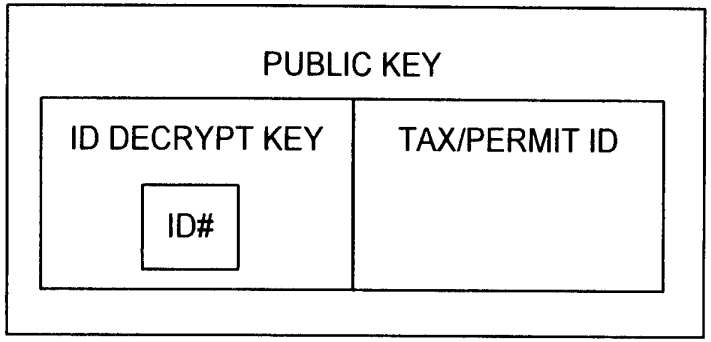
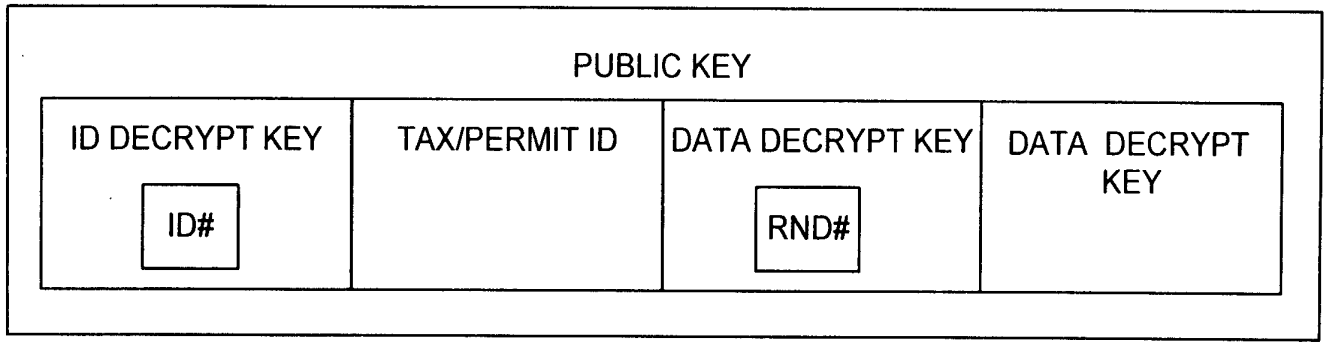

16
MANAGING CONTROLLER
HRNG CONTROLLER
SECURE MEMORY (ID#)
RNG
RNG KEY GENERATOR
RND#
2c
2c
2d
PROCESSING AND ENCRYPTION
PUBLIC KEY
ID DECRYPT KEY
ID#
1 ENROLLMENT
2a HOST REQUEST
2b HRNG CONTROLLER REQUESTS/ RECEIVES STORED ID#
2g
HOST
ENCRYPTED ID# STORED
PUBLIC KEY
2f
PUBLIC KEY
ID DECRYPT KEY
ID#
DATA DECRYPT KEY
RND#
DATA DECRYPT KEY
2e

FIG. 3



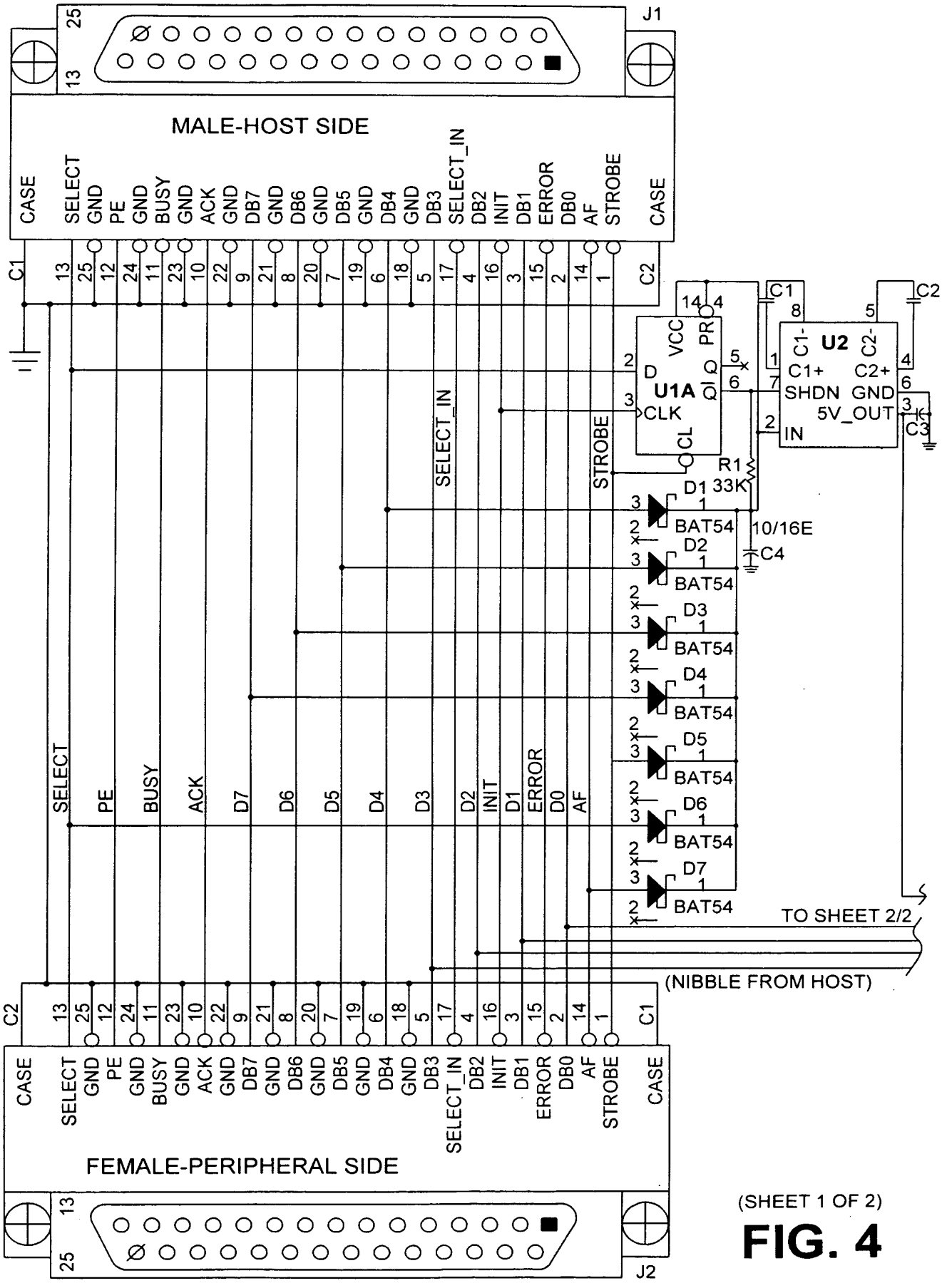
2 PART ID#

FIG. 3a



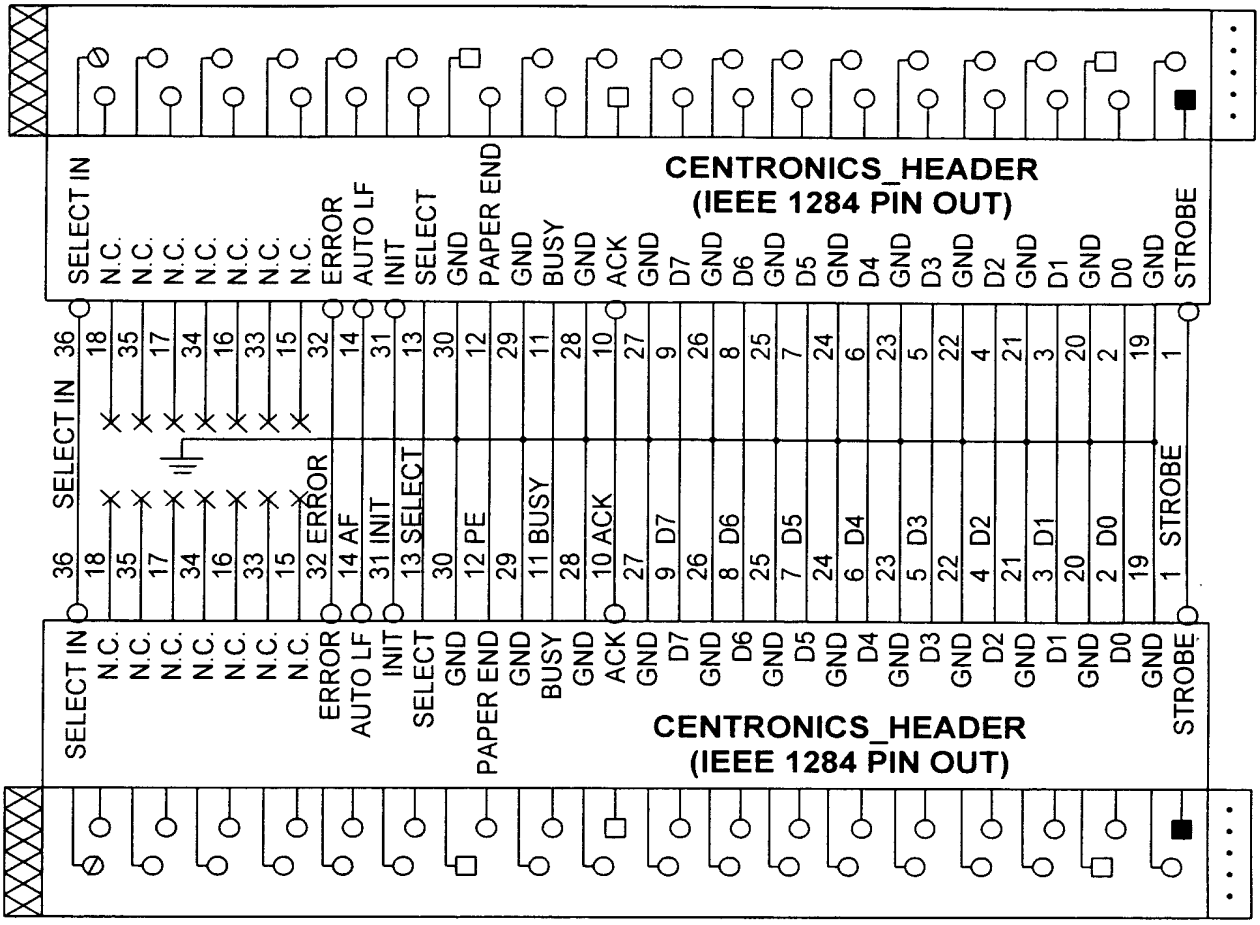
2 PART ID# SENT WITH DATA

FIG. 3b



(SHEET 1 OF 2)

FIG. 4


CENTRONICS_HEADER
(IEEE 1284 PIN OUT)
SELECT IN N.C. N.C. N.C. N.C. N.C. N.C. N.C. ERROR AUTO LF INIT SELECT GND PAPER END GND BUSY GND ACK GND D7 GND D6 GND D5 GND D4 GND D3 GND D2 GND D1 GND D0 GND STROBE
36 18 35 17 34 16 33 15 32 14 31 13 30 12 29 11 28 10 27 9 26 8 25 7 24 6 23 5 22 4 21 3 20 2 19 1
SELECT IN 36 18 35 17 34 16 33 15 32 ERROR 14 AF 31 INIT 13 SELECT 30 12 PE 29 11 BUSY 28 10 ACK 27 9 D7 26 8 D6 25 7 D5 24 6 D4 23 5 D3 22 4 D2 21 3 D1 20 2 D0 19 1 STROBE
CENTRONICS_HEADER
(IEEE 1284 PIN OUT)

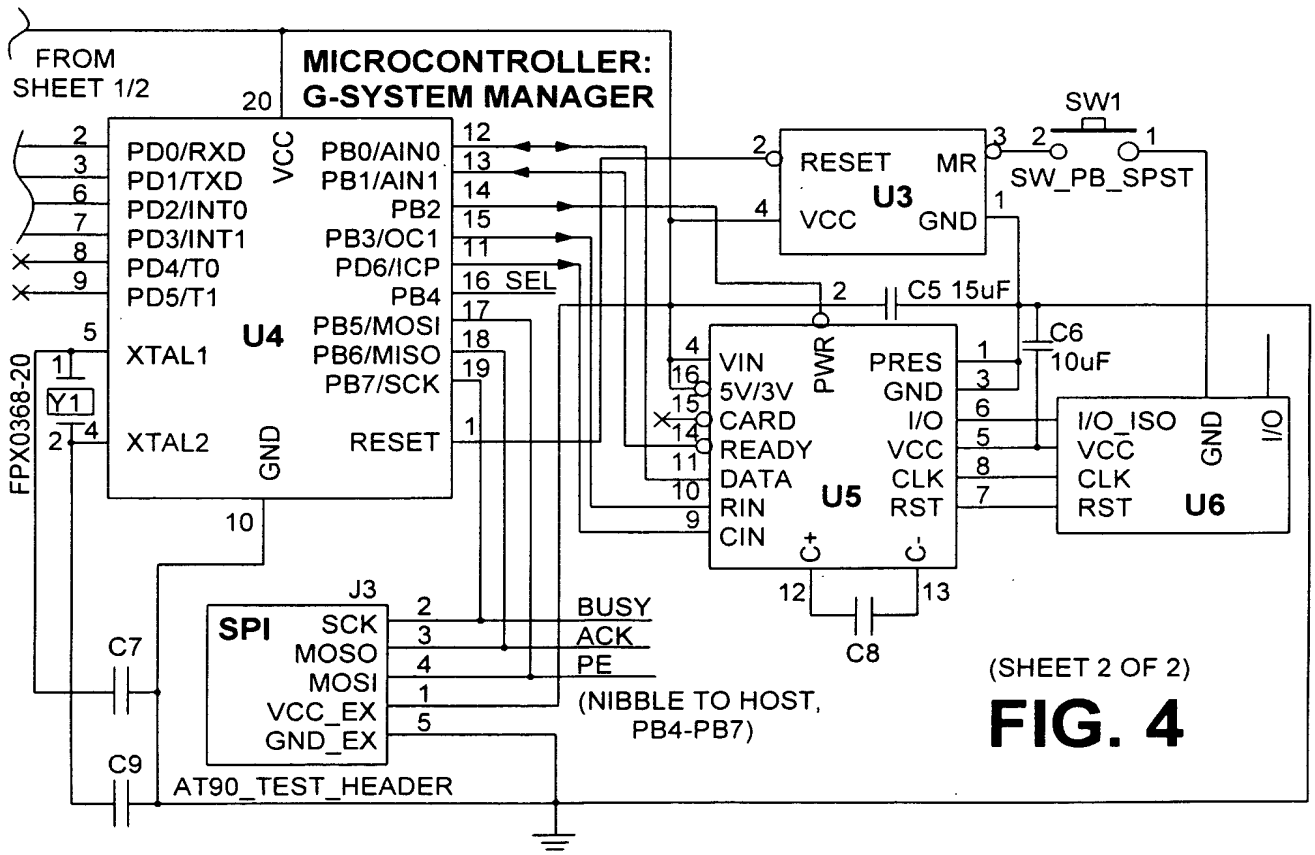
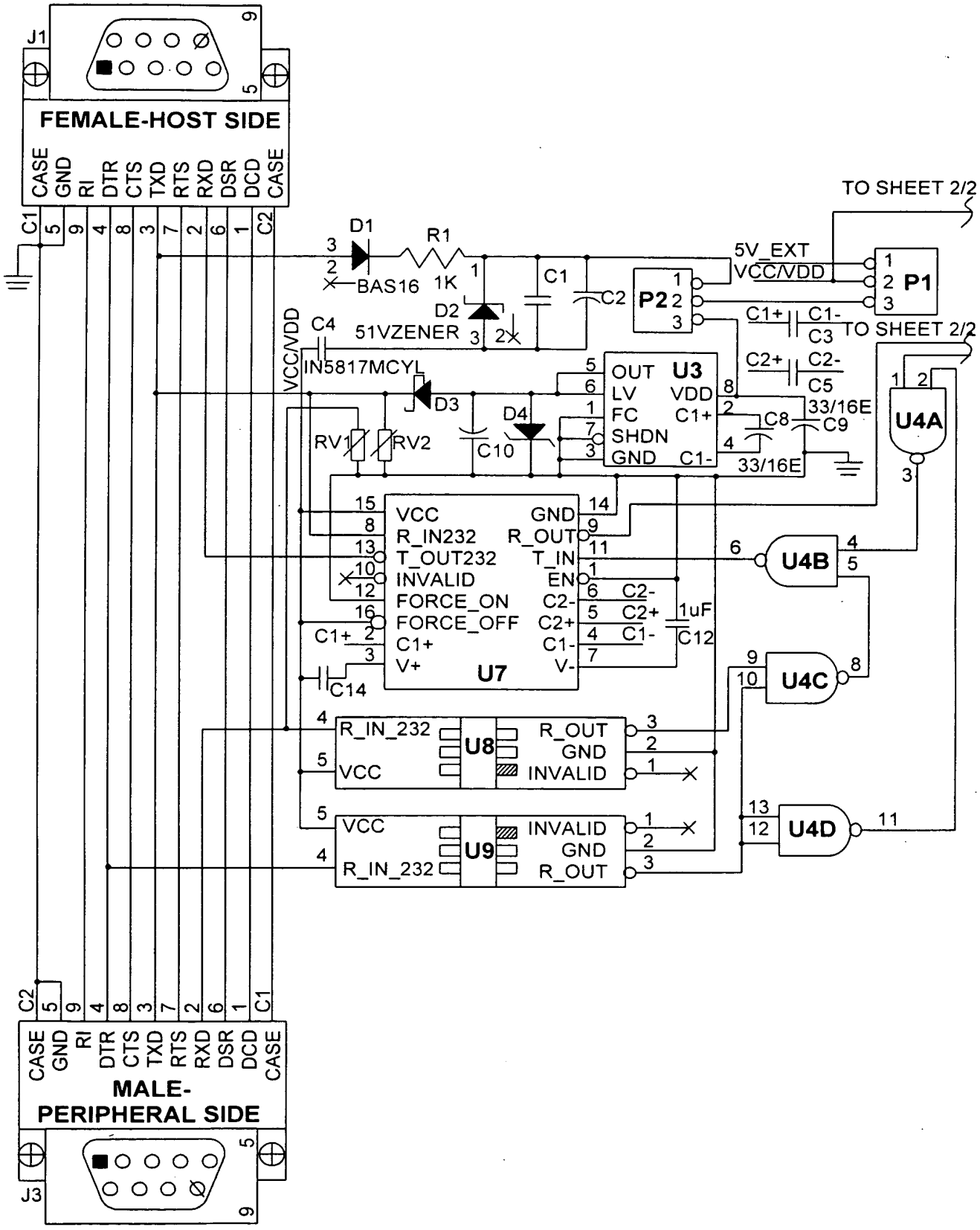
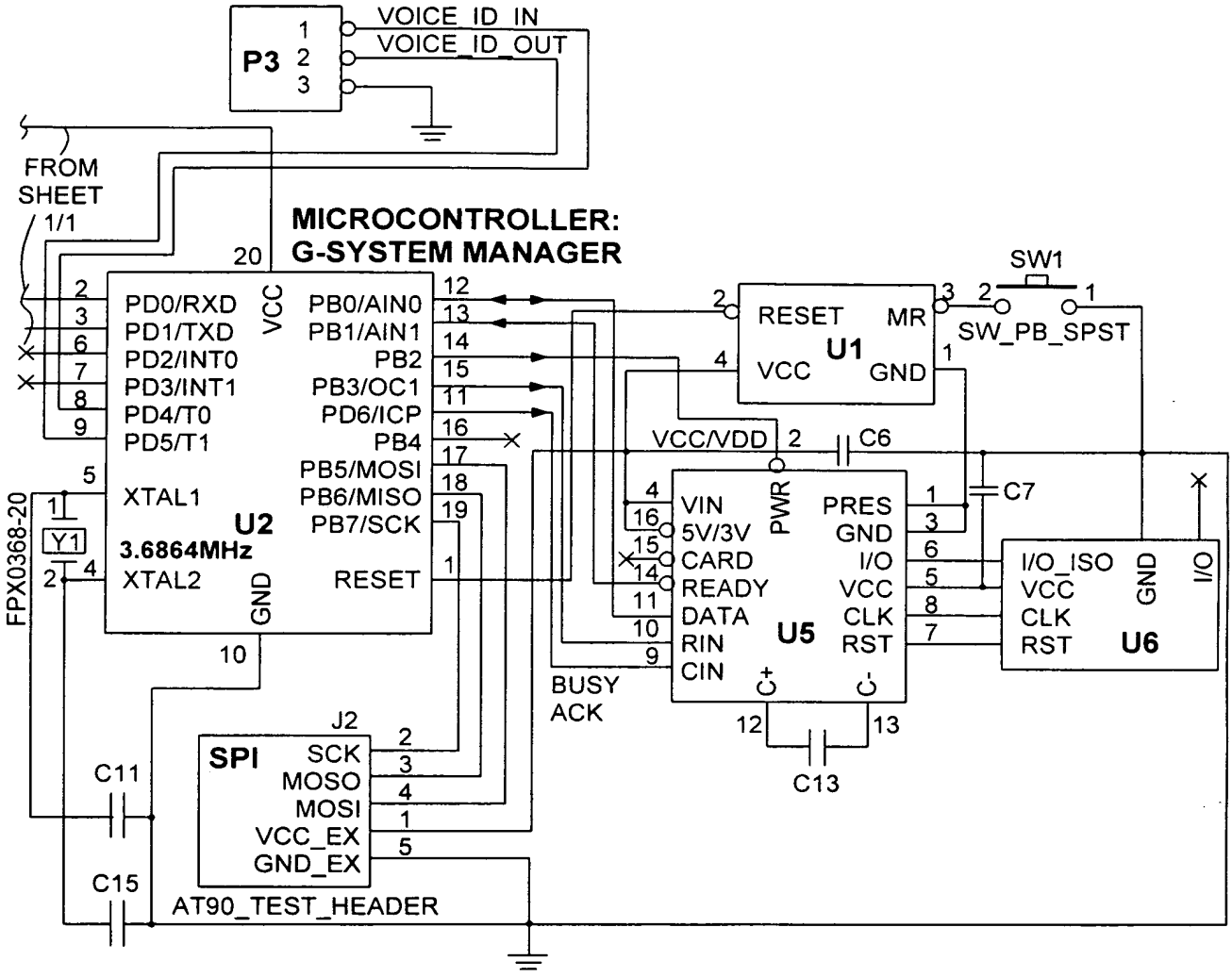

FROM SHEET 1/2
MICROCONTROLLER: G-SYSTEM MANAGER
U4
PD0/RXD PD1/TXD PD2/INT0 PD3/INT1 PD4/T0 PD5/T1 XTAL1 XTAL2 VCC GND
PB0/AIN0 PB1/AIN1 PB2 PB3/OC1 PD6/ICP PB4 PB5/MOSI PB6/MISO PB7/SCK RESET
SEL
FPX0368-20
Y1
U3
RESET MR VCC GND
SW1
SW_PB_SPST
C5 15uF
C6 10uF
U5
VIN 5V/3V CARD READY DATA RIN CIN PWR PRES GND I/O VCC CLK RST C+ C-
U6
I/O_ISO VCC CLK RST GND I/O
C7
C8
C9
J3
SPI
SCK MOSO MOSI VCC_EX GND_EX
BUSY
ACK
PE
(NIBBLE TO HOST, PB4-PB7)
AT90_TEST_HEADER
(SHEET 2 OF 2)

FIG. 4



(SHEET 1 0F 2)

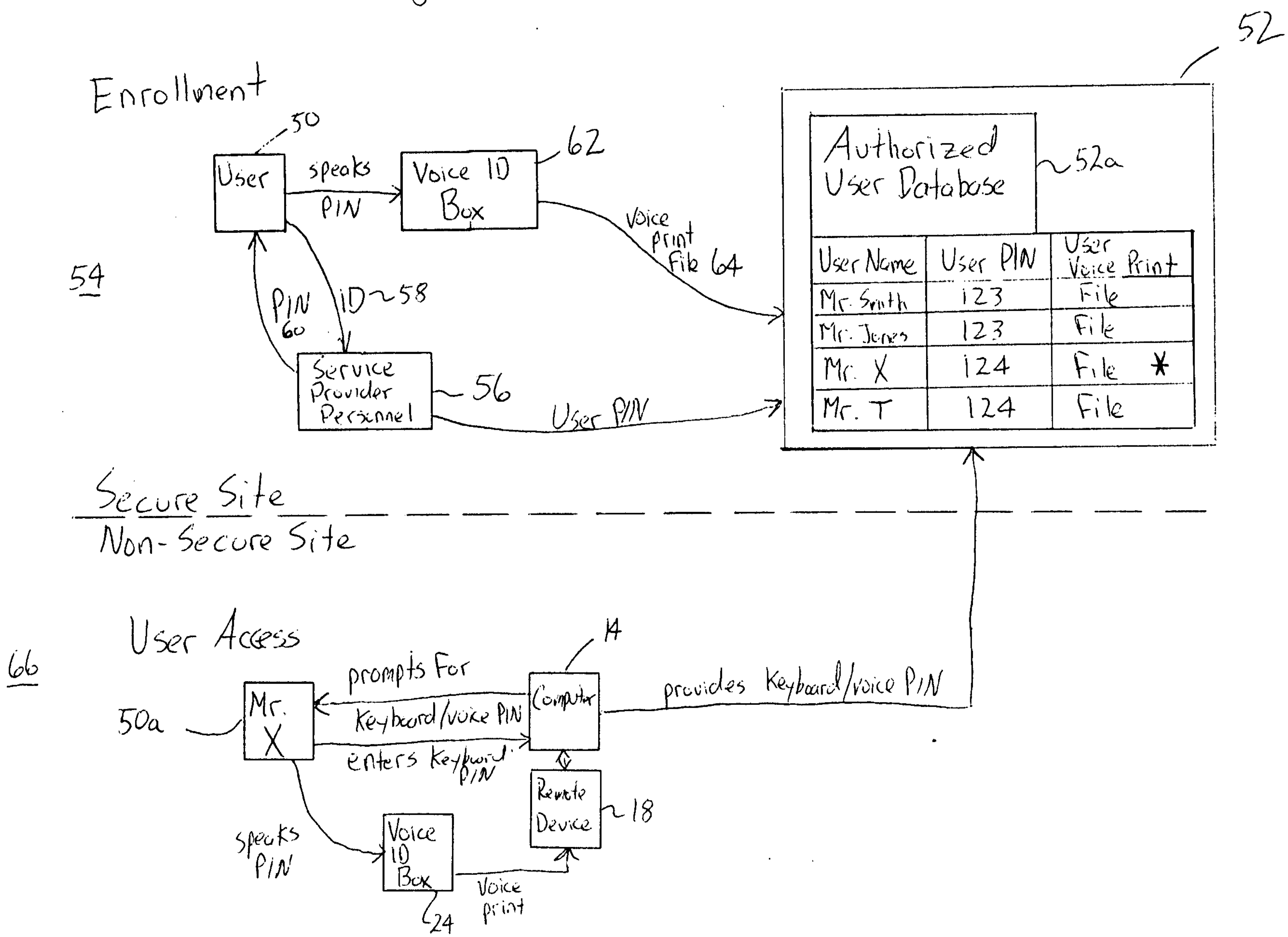
FIG. 5



(SHEET 2 OF 2)

FIG. 5

Figure 6


Enrollment
54
User
50
speaks
PIN
Voice ID Box
62
Voice print File 64
PIN 60
ID ~58
Service Provider Personnel
~56
User PIN
52
Authorized User Database
~52a
User Name
User PIN
User Voice Print
Mr. Smith
123
File
Mr. Jones
123
File
Mr. X
124
File *
Mr. T
124
File
Secure Site
Non-Secure Site
User Access
66
Mr. X
50a
prompts For Keyboard/voice PIN
enters Keyboard PIN
Computer
14
provides Keyboard/voice PIN
Remote Device
~18
speaks PIN
Voice ID Box
24
Voice print

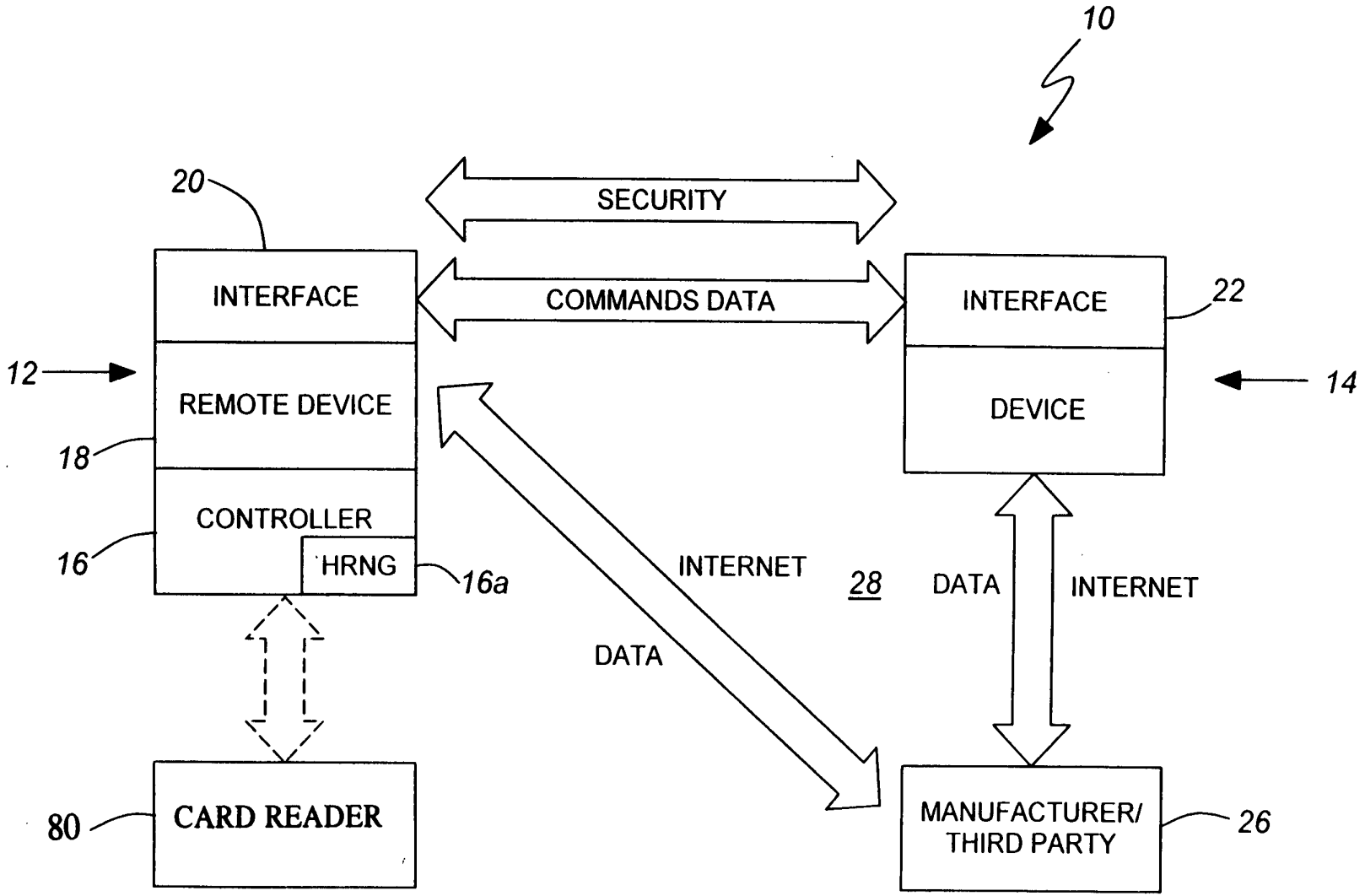
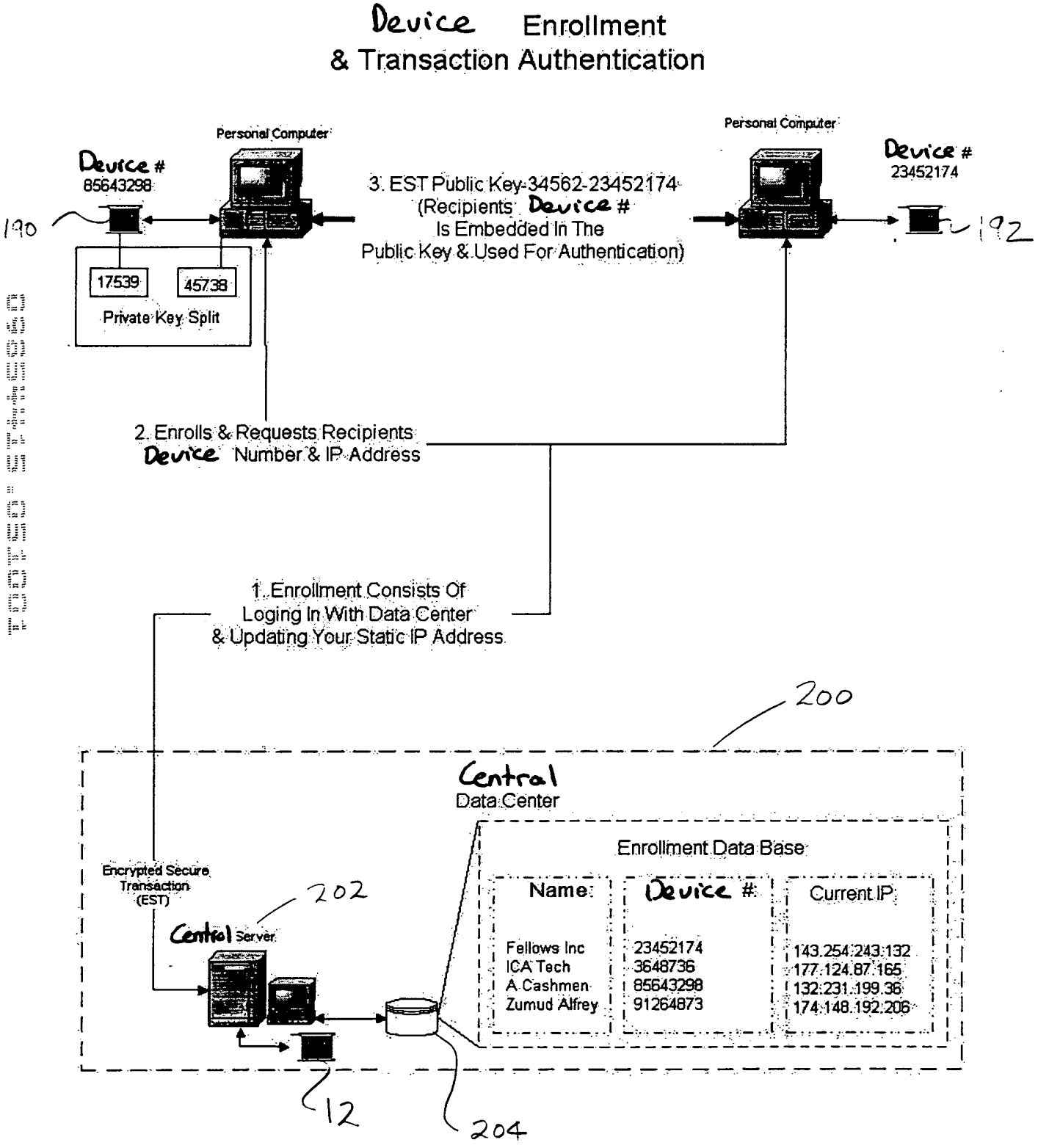

10
20
SECURITY
INTERFACE
COMMANDS DATA
INTERFACE
22
12
REMOTE DEVICE
DEVICE
14
18
CONTROLLER
16
HRNG
16a
INTERNET
28
DATA
INTERNET
DATA
80
CARD READER
MANUFACTURER/
THIRD PARTY
26

FIG. 7

Figure 8


Device Enrollment
& Transaction Authentication
Personal Computer
Device # 85643298
190
17539
45738
Private Key Split
3. EST Public Key-34562-23452174 (Recipients Device # Is Embedded In The Public Key & Used For Authentication)
Personal Computer
Device # 23452174
192
2. Enrolls & Requests Recipients Device Number & IP Address
1. Enrollment Consists Of Loging In With Data Center & Updating Your Static IP Address
200
Central Data Center
Enrollment Data Base
Name
Device #
Current IP
Fellows Inc
ICA Tech
A Cashmen
Zumud Alfrey
23452174
3648736
85643298
91264873
143.254.243.132
177.124.87.165
132.231.199.36
174.148.192.206
Encrypted Secure Transaction (EST)
202
Central Server
12
204